DOCUMENT RESUME

ED 177 566 CS 205 191

AUTHOR Cohen, Mitchell E.; And Others
TITLE Canadian Public Television and Pre-Schoolers: Predictors of Users and Non-Users.
SPONS AGENCY Ontario Educational Communications Authority, Toronto.
PUB DATE Aug 79
NOTE 40p.; Paper presented at the Annual Meeting of the Association for Education in Journalism (62nd, Houston, TX, August 5-8, 1979)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Early Childhood Education; *Family Environment; Foreign Countries; *Parent Attitudes; Parent Child Relationship; *Preschool Children; Programing (Broadcast); *Public Television; *Television Research; *Television Viewing; Viewing Time
IDENTIFIERS Ontario

ABSTRACT

A study of the preschool television audience in Ontario, Canada, investigated the types of programs children aged two through six years old watch; in what kinds of households preschool children view TV Ontario (TVO), the Canadian public television network; and the kind of strategies that might best capture the potential preschool market. Information was obtained through interviews with parents in 634 households with preschool children, in half of which the children viewed TVO and in half of which they did not view TVO. Among the results suggested by analyses of the data were that TVO viewing correlated with a richer family media environment, higher socioeconomic status, and parental awareness of TVO, awareness of and attention to children's television viewing, and positive attitudes toward television; and that only the attitudinal variables significantly predicted levels of TVO viewing among TVO households. The data also suggested that strategies designed to increase the TVO viewing of preschool children should focus on increasing TVO availability, on increasing knowledge and awareness about TVO, on appealing to concerns about the educational value of television programing, and on developing positive attitudes about TVO and television in general. (GT)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED177566

CANADIAN OPINION RESEARCH LTD.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CANADIAN PUBLIC TELEVISION AND PRE-SCHOOLERS: PREDICTORS OF USERS AND NON-USERS

Mitchell E. Cohen, Sheridith Clark, Jane Brown
Larry Gerner, John Geffken

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Mitchell E. Cohen
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Prepared for the Association of Education and Journalism
Houston, Texas, August 7, 1979

CS205191

CANADIAN PUBLIC TELEVISION AND PRE-SCHOOLERS: PREDICTORS OF USERS AND NON-USERS

A. Study Objective

In 1978 The Ontario Educational Communications Authority (OECA) commissioned a study of the pre-school audience in an attempt to answer three broad questions:

1. What types of programs do pre-school children watch?
2. In what kind of households do 2-6 year old children view TV Ontario (TVO), Canadian Public Television?
3. What kind of promotional, product, and scheduling strategies would best capture the potential market of pre-school viewers?

The study design focused on (1) a comparison between families in which TVO is viewed by pre-school children and those in which TVO is not viewed and (2) a comparison within the families who view TVO by level of exposure.

B. History OECA

To place the present study in context, it is useful to briefly describe the Ontario Educational Communications Authority (OECA). The OECA was formed in June 1970 as a provincial crown corporation. While funded primarily through provincial grants, the organization is an autonomous agency with its own Board of Governors who maintain an armslength relationship with the political funders.

This research is sponsored by the Ontario Educational Communications Authority . Much of the data analysis for the paper was executed by Carolyn Allen.

The mandate of the OECA is to provide educational opportunities to all citizens of Ontario by means of electronic and associated media. While this mandate is broad, the organization presently concentrates on television production and broadcast distribution, with videotape distribution to educational institutions as a secondary thrust. From its broadcast beginnings nine years ago, with one station in Toronto, the OECA has grown to a nine-station network known as TV Ontario (or TVO). TVO has a centralized feed from the Toronto flag-ship station and its signal is within reach of approximately 86 percent of Ontario's eight million population. The network broadcasts from eight o'clock in the morning to about midnight, seven days a week, with reduced summer hours. Its schedule includes both "schools" programming -- programming directed toward students in schools, from kindergarten to grade 13, with some programming designed to accomodate the needs of colleges and universities and "open sector" programming which is directed to the "at-home" audience.

Pre-school children (2-6 year olds) are considered part of this "open sector" audience. From the beginning, these children have been attracted to TV Ontario programs and have consistently formed the highest aggregate of "open sector" viewers.

C. Background

In this study the family is viewed as the primary agent of socialization. The particular media behavior of interest is exposure to public television. Public television was originally thought of and, indeed, is often referred to as educational television. It was developed in Canada, the United States and Great Britain as an alternative to the primarily entertainment-centered commercial channels. It has not, however, succeeded in drawing adult audiences comparable in size to commercial television audiences, except in rare instances of well-publicized programming (see Lyle, 1974 for a more complete analysis of American public television audience and Bureau of Broadcast Measurement Statistics for Canadian statistics). The introduction of children's programming in the form of such shows as "Sesame Street" and "The Electric Company" in the late 60s and early 70s, however, did much to move public television into a competitive role with the private sector at least with the pre-school age group. The success of Sesame Street is well-documented (Lesser, 1974), and it is now viewed in over 50 countries all over the world.

Children typically begin viewing television when they are about two years old. By the time they are three years old they are consuming almost an hour of television a day. The five-year-old child spends about three hours per day before the television set and this amount increases slightly until the onset of adolescence (Lyle and Hoffman, 1972, 1976).[2]

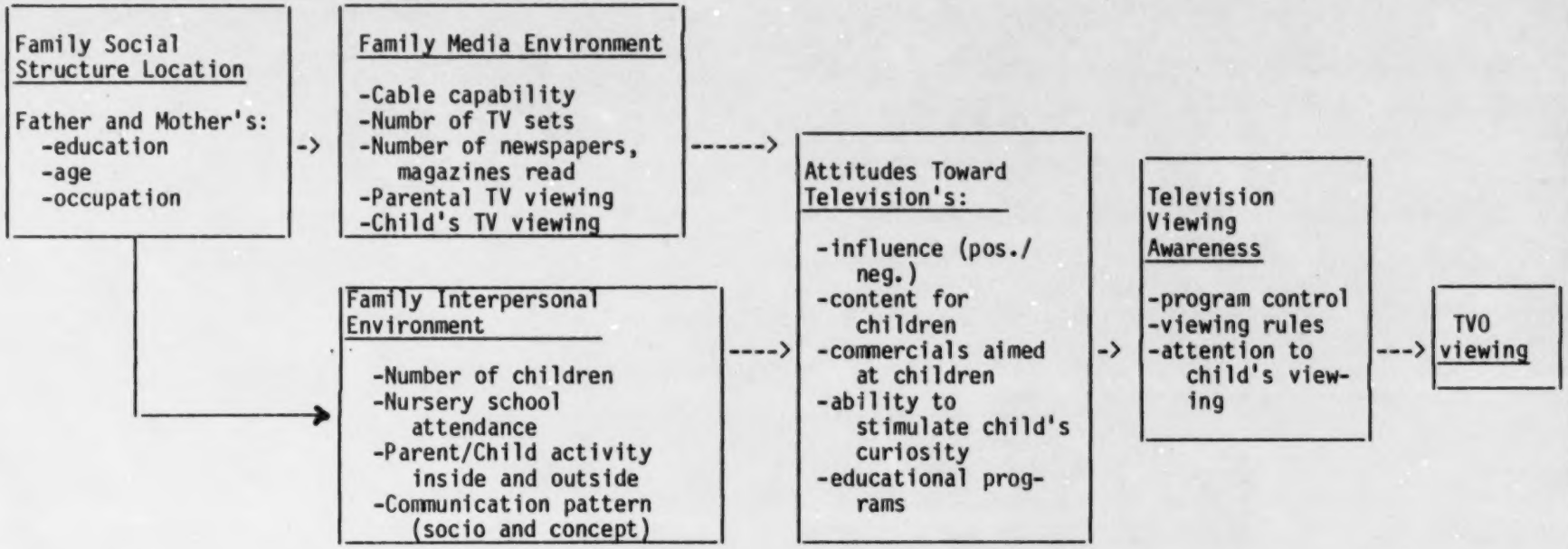
A number of researchers have been interested in learning more about how children develop specific patterns of television viewing, although few have studied the pre-school age group. McLeod and O'Keefe (1972) have outlined a socialization perspective on communication behavior which argues that patterns of mass media use are learned over the course of the lifetime. Although they have applied their perspective primarily to the adolescent age period (McLeod and Brown, 1976), their perspective is equally applicable to other age groups.

The key assumption of the socialization perspective is that in order to understand a human behavior, such as mass media use, social origins and the processes by which it is learned and maintained must be specified. This demands the study of socializing agents as well as the child being socialized.

Following the lead of many researchers that the family is a primary socialization agent for mass media use, a number of variables within the context of the family unit are examined as predictors of TVO viewing among children. These variables and their hypothesized linkages are diagrammed in Figure 1.[3]

CANADIAN OPINION RESEARCH

Figure I. Model of key variables predicting children's public television (TVO) viewing behavior.



D. Hypothesized Relationships

Family Social Structure Location

Only a few studies have documented the effect of location in the social structure, as measured by such variables as father's education and income, on the media habits of children in the family (British children: Greenberg, 1976; American children: Schramm, Lyle and Parker, 1961 and Greenberg et.al. 1970) but these have consistently found higher levels of viewing among lower SES groups. Although not studied directly, other evidence from the study of "communication effects gaps" (Rogers, 1976) suggests that educational levels and position in the social structure of the community will affect not only how quickly individuals learn of particular topics, but also to what extent they use particular channels of information. In particular, children of parents with lower socio-economic status, while higher viewers of entertainment mass media, would be expected to be less frequent viewers of public, educational television. The mechanism involved here is assumed to be a combination of both generalized feeling regarding the value of education as well as less opportunity to become familiar with TVO availability and programming.

Family Media Environment

In order to assess the importance of the family's media environment, a number of access and utilization variables are included in the analysis. For example, a major problem in the development of an audience for public television, both in the United States and Canada, has been the reliance on UHF frequencies and the resultant bad or non-existent reception for much of the potential audience.

Obviously the households that do not receive TVO cannot regularly watch TVO programming. As discussed subsequently, however, excellent reception of TVO is related to increased viewing. In preliminary analyses, the reception variable was clearly the most significant factor in TVO viewing and is consequently removed from further analyses in order to assess the relative contribution of those variables more under the immediate control of the family. The introduction of cable transmission has offset some of the reception problems, although many areas in both the United States and Canada are still without the choice of cable.[4] A test of the effect of cable in determining TVO viewing is incorporated into these analyses. Families who subscribe to cable television are predicted to be more frequent viewers of public television than those without cable due to both better reception of the signal. This may, however, be offset somewhat by the increased opportunity to watch childrens' programs on CBC or channels other than TVO.

Other factors in the family's general media environment which are included in the analyses and may effect the extent of TVO viewing by the children in the family are: the number of television sets in the home and the number of newspapers and magazines read by the parents. Both of these variables are expected to be positively related to higher levels of TVO viewing. Children having access to their own television set are expected to have greater opportunity to watch children's programming while the adults in the family watch other programs on other sets. However, to the extent that TVO viewers are of higher socio-economic status, the effects of multiple television sets and increased access in the household may be confounded by household income.

The extent of print media use by the parents is expected to be related to the educational level of the parents and thus might serve as further explanation of the process involved in mass media socialization. In general, it is expected that children raised in media-rich homes (homes with a variety of print and broadcast media available) will be higher public television viewers, probably because their parents appreciate the value of information. Through the print media parents also have greater opportunity to learn of the availability of educational television for children.

The general frequency of both the parents' and childrens' televison viewing should also be associated with public televison viewing, although in what direction the best prediction might be made is unclear. It may be that the higher the levels of television viewing in general in the household, the greater the opportunity to watch at least some public television programming. On the other hand, it may be that the most frequent television viewers are also the less discerning viewers and are less likely to choose educational content for themselves or their children. Either way, the general level of television viewing should be associated with how often the public television station's programming for children is viewed.

Family Interpersonal Environment

Other family-environmental factors which are expected to be related to TVO viewing concern the interpersonal family structure. Larger families are expected to be more frequent TVO viewers since they are more likely to have heard about certain programs from friends and playmates.

Similarly, nursery school attendance is expected to be associated with higher levels of public television viewing since television characters and plots are used as topics of conversations by pre-schoolers (in Sweden: von Feilitzen, 1976), and at least among younger adolescents in Great Britain (Brown, 1976; Dembo, and McCron, 1976). There is some likelihood that pre-schoolers are viewing TVO shows while at nursery school, as well. Taylor and Samuels (1970) found that about 50% of the children in day-care and other prekindergarten centers in inner cities in the early days of Sesame Street were viewing at the centers.

The extent of parent-child interaction centering around common activities either inside or outside the home is also considered in relation to TVO viewing. A greater proportion of children of parents who often interact and participate in activities with them are expected to view public television.

The kind of structure of parent-child interaction is also considered as a potential explanation for differential patterns of public television viewing. Chaffee and McLeod (1972) describe two patterns of parent-child communication: in the socio-oriented pattern, parents stress harmonious social relations, avoiding disagreements and conflicts. In the concept oriented pattern, parents encourage children to express their own ideas, challenging others' opinions. They have found that these orthogonal dimensions are related to frequency of viewing violent programming as well as public affairs content. It is expected here, although the patterns had never been applied in relation to pre-schoolers, that public television viewing will be higher in families which are characterized by a high degree of concept-orientation and socio-orientation.

A family that encourages expression of ideas is predicted to view more educational TV. Also, for the 2-6 year old, parents that have control over the child's viewing are predicted to have their child view more educational television. Consequently, children from families with a high degree of socio-orientation are expected to have higher frequencies of public television viewing in as much as TVO attempts to provide programming with a pro-social orientation.

Attitudes Toward Television

Parents' attitudes toward the inclusion of commercials in children's programming and children's programming in general are another set of variables examined in relation to frequency of TVO viewing. It is expected, in general, that parents who hold more favorable opinions regarding the current programming of children's television, would be most likely to have children who are frequent viewers of public television. The direction of influence here is unclear, however. Parents whose children watch public television may have become more satisfied with the worth of television since their child became a viewer, rather than the alternative hypothesis which suggests that parents who feel that television can be beneficial are those most likely to steer their children to content provided by TVO.

If these attitudinal variables are significantly related to TVO viewing, they are important from a policy standpoint as well. Suppose, for example, that parents who agree that television can stimulate the curiosity of their child are those most likely to have children who watch public television.

This suggests, regardless of casual sequence, that public television viewing may be more appealing to those who don't currently watch through an appeal concerning TV's potential for stimulating curiosity. These attitudinal factors are probably the most interesting items since they are the one set of variables in the model which might be subject to change through some sort of persuasive campaign regarding the benefits of public television.

Television Viewing Awareness

A number of researchers have investigated the extent of parental control and influence over the child's television viewing (Chaffee, McLeod and Atkin, 1971; Schramm, Lyle and Parker, 1961). None, however, have examined how direct parental control over television viewing affects the frequency of viewing public television programs. Parental control and awareness of the child's viewing pattern is expected to be positively related to TVO viewing. Greater parental awareness is assumed to indicate more child-parent interaction and concern with the child's learning. Greater control may be viewed in the same vein of parental concern, and therefore it would suggest a positive relationship which is similar to the notion of socio-orientation in the interpersonal communication environment was predicted to have a positive relationship with TVO viewing.

The variables suggested to be related to TVO viewing are summarized below.

-education and SES
-cable subscription
-number of TV sets
-other media use
-larger family
-nursery school attendance
-parent-child interaction
-more favorable opinions and attitudes about the impact of children's TV
-parental control of television
-frequency of parents' and childrens' television viewing

E. Selection and Description of Sample

The population for this survey is the parent of the household in the Province of Ontario who best knows the 2-6 year-old-child's television viewing patterns.

The Canadian Opinion Research (COR) centralized phone facility in Toronto surveyed by telephone 634 households in the province of Ontario. Clusters were chosen in the province using a population-proportionate-to-size (PPS) systematic sampling method. The households selected within each cluster were chosen using a random digit dialing process[5]. To qualify for the sample the household had to pass through two filters: (1) Having children between the ages of 2-6 and (2) having a working television set.

To obtain the 634 households, initially 400 households were selected using a systematic population-proportionate-to-size method. From these initial 400 households a TVO audience reach of 47% for pre-school viewing was determined. Based on this, two subsamples were selected of 317 households where children ages 2-6 view TVO and 317 households where 2-6 year old children did not view TVO. These subsamples were completed by supplementing the original sample using PPS method to achieve a selection of 317 TVO viewing and 317 non TVO viewing households.

The sample of 634, then, is not a random sample of the population since households where children view TVO are oversampled. Each sub-sample of 317, however, represents the TVO/non-TVO families with 2-6 year olds.

The parent who identified themselves as most knowledgeable about the television viewing habits of his/her pre-schooler was interviewed in each household. Of those interviewed, 69% are mothers and 29% are fathers.

F. Analysis

The dependent variable predicted to throughout this analysis is child's level of TVO viewing. For the descriptive cross tabular analysis, level of TVO viewing is determined by both the parent's report on frequency of child's viewing and the ability to name at least one TVO program.

Where a parent could name a TVO program, high TVO vieing households are defined as those where the child watched everyday (N=143), low TVO viewing households are defined as those in which the child views less than everyday (N=114), an non-TVO viewing households are those in which the child does not view TVO (N=327).* For the multivariate analysis only, the parents report of child's viewing is used since there is high reliability of this measure.

Demographic Description

Table 1 presents the demographic characteristics of the sample by the child's level of TVO viewing and non-TVO viewing. This table indicates that in households where children watch TVO, the parents have generally higher socio-economic status as indicated by higher educational achievement, higher levels of employment and generally more professional or skilled employment. Notably children of working mothers are more likely to view little or no TVO.

---

*The additional 10 cases to non-TVO viewing households represent 10 persons who reported their child watching TVO but could not name any programs.

Table 2: Description of sample by TVO viewing

Descriptive measures		Total sample (N=634)	Child's level of TVO viewing: High (N=143)	Low (N=164)	None (N=327)
Number of children					
less than 18 yrs.	(1)	30%	27%	27%	33%
	(2)	45	49	45	44
	(3)	16	18	18	15
	(4)	5	1	7	6
	(5+)	3	5	2	2
Type of household					
Single parent		7%	5%	7%	9%
Two parent		92	95	93	91
Maternal employment					
% employed fulltime		31%	25%	35%	33%
Paternal employment					
% employed fulltime		83%	90%	86%	78%
% professional/tech		18	24	28	14
Maternal education					
% high school or less		65%	62%	66%	66%
Paternal education					
% of high school or less		60%	55%	59%	62%
Maternal age					
% under 34		71%	72%	76%	68.5
Paternal age					
% under 34		58%	60%	58%	56%

General Television Viewing and Favorite Programs

There are small, nonsignificant differences between the television viewing exposure of families in which children watch TVO as compared to those families in which TVO is not viewed(see Table 2).

Table 2: Hours of television viewing by TVO viewing

Hours of weekday television viewing in evenings[6]	Total sample (N=634)	Child's level of TVO viewing: High (N=143)	Low (N=164)	None (N=317)
0 hours	8%	6%	7%	10%
1 hours	21	22	27	18
2 hours	33	32	33	35
3 hours	20	20	17	22
4+ hours	8	12	8	6

"Sesame Street" was named most often as the child's favorite television show. Parents were asked to name up to three of their child's favorite shows. The combined mentions of the top seven programs are presented in Table 3. Notably four of the seven are TVO programs and "Polke Dot Door" and "Jeremy" are exclusively TVO programs.

How can "Sesame Street" be named by parents of children who supposedly do not watch TVO? The most likely explanation is that their children watch "Sesame Street" on the CBC network, the Canadian Broadcasting Corportation, which is available across the province, or on PBS, the American Public Broadcasting Service which can be received by approximately a quarter of the non-TVO viewing families (see Table 4). Also apparent in Table 4 is the positive relationship between reception and viewing of TVO.

Table 3: Child's favorite television shows by TVO viewing

Favorite television shows of children	Total sample (N=634)	Child's level of TVO viewing: High (N=143)	Low (N=164)	None (N=317)
Sesame Street*	64%	78%	66%	57%
Mister Dress-up	21	29	17	19
Polka Dot Door**	17	32	23	8
Flintstones	12	7	13	13
Electric Company*	5	9	6	2
Jeremy**	5	11	5	2
The Muppet Show	4	6	4	4

* program appears on TVO and other networks (incl. PBS, CBC)
**program appears only on TVO

Table 4: Recognition of American public television (PBS) by TVO viewing

PBS recognition	Total Sample	Child's level of TVO viewing: High	Low	None
% receive PBS programs	33%	50%	39%	23%
(if receive) % excellent reception (PBS)	56%	34%	21%	30%
% receive TVO programs	64	100	100	30
(if receive) % excellent reception (TVO)	43	58	39	26

Why were "Polka Dot Door" and "Jeremy" named by parents of children who supposedly do not watch TVO? Since these programs were advertised in TV listings prior to the survey, parents may have named the programs because they had seen the advertisements and the names of these TVO programs came to mind or their children may have viewed these programs in other than home settings. (Of course, for any question, some respondents may report incorrectly.)

Discriminant Analysis

Given the dichotomous dependent variable of TVO viewing versus non-TVO viewing, a discriminant analysis allows a determination of which variables best discriminate between these two types of television viewing children and it provides some useful insight and points of departure for further analyses.[7] It also provides a means of looking at the relative influence of each of the predictor variables.

Using the model described previously, 25 variables were used to discriminate between TVO viewers and non-viewers.[8] The categories of the variables used in the variables entered in discriminant analysis are shown in Figure 2.

Figure 2: Discriminant analysis variables*

Variable	Measure**
Family Social Structure Location	
1. Father's and 2. Mother's education	What is the last level of education that you/your spouse completed? (grade school...post graduate)
3. Father's and 4. Mother's age	Into which of the following age groups may I place you/your spouse? (1=18-24; 2=25-34; 3=35-49; 4=50+)
5. Father's occupation 6. Mother's occupation	What is your/his occupation? (01-90, using Census definitions) Are you/your spouse employed fulltime outside the household? (1=Yes; 2=No)
Family Media Environment	
7. Number of TV sets	How many TV sets do you have in your home that are usually in good working condition? (1=one; 2=two or more)

* see end of figure
**see end of figure

Figure 1(cont.) Description of variables entered in discriminant analysis

Variable	Measure**
8. Cable capability	Do you receive television by cable? (1=Yes; 2 No)
9. Number of newspapers, magazines read	Constructed variable which - is a count of those magazines and newspapers reported from the following question: During the past four weeks what newspapers/ magazines have you or your spouse read or looked into?
10. Parental TV viewing	During the last weeknight that you watched television after 7 p.m., how many hours of television did you watch in the evening: (1=1 hour; 2=2 hours; 3=3 hours; 4=4 hours or more)
11. Child's TV viewing	During the last weekday that your (oldest) 2-6 year old watched TV about how many hours did they watch television between the time they got up that morning and bedtime that night? (actual number of hours recorded)
Family Interpersonal Environment	
12. Number of children	How many children and teenagers 18 years of age or younger live in your household? (actual number recorded)
13. Nursery school attendance	Have your 2-6 year olds at any time attended nursery school - that is, half-day programs rather than full time day care? (1=Yes; 2= No)

Figure 1(cont.) Description of variables entered in discriminant analysis

Variable	Measure**
14. Parent/Child activity outside the home	Constructed scale coding the responses to the following questions (a-d): During the past year, how often have you or your spouse done each of the following things with your children? Took them to: a. movies b. performances for children c.museums, pioneer villages, scientific exhibitions, fairs, d. outdoor excursions (4= frequently; 3=occassionally; 2= rarely; 1=never)
15. Parent/Child activity inside the home	Constructed scale adding the responses to the following questions (a-c): During the past week, did you or your spouse do the following? a. read stories to your 2-6 year olds b. make things with your 2-6 year olds c. play games with your 2-6 year olds both in and out of doors. (4= frequently; 3=occasionally; 2= rarely; 1=never)
16. Communication Pattern: Socio	Constructed scale adding the responses to the following questions (a-c): "I am going to read you a list of things that parents sometimes say or do in family conversations while their children are growing up." a. Say that children should give in on arguments rather than make people angry. b. Answer your children's argument by saying "you'll know better when you grow up." c. Say that your point of view is the correct one and should not be challenged by your children. (4=often; 3=sometimes; 2=rarely; 1=never)

Figure 1(cont.) Description of variables entered in discriminant analysis

Variable	Measure**
17. Communication Pattern: Concept	Constructed scale using same format as for socio, with these items: a. Talk at home about things like politics and religion where one person takes a different side from the other. b. Admit that children may know more about some things than adults do. c. Emphasize that everyone in your family should have some say in your discussions. d. Say that getting your idea across is important even if others do not like it.
Attitudes Toward Television's	
18. Influence on children	What overall influence, if any, would you say TV has on the behavior of 2-6 year old children? Would you say: (5= a strong positive influence; 4= a moderate positive 3= neither a positive nor negative influence; 2= a moderate negative influence; 1 = a strong negative influence.)
19. Content for children	How satisfied are you with the content of TV programs that are available for 2-6 year old children? Would you say you are: (4= very satisfied; 3= satisfied; 2= somewhat dissatisfied; 1= very dissatisfied).
20. Commercials aimed at children	Television commercials should not be allowed in any programs children are likely to watch. (4= agree strongly; 3=agree somewhat; 2= disagree somewhat; 1= disagree strongly)
21. Ability to stimulate child's curiosity	Television helps encourage curiosity about the world. (same scale as above)

Figure 1(cont.) Description of variables entered in discriminant analysis

Variable	Measure**
22. Best programs are educational	Dummy variable constructed by coding as "1" all those giving education as the response to: Why have you chosen these programs (all programs listed as best TV programs currently available for 2-6 year old children.) "0" all other answers.
Television Viewing Awareness	
23. Program control	Who usually chooses the programs that your 2-6 year old child watches on TV? (1=respondent or alone; repsondent and spouse together; 2=2-6 year old alone; 3= an older brother or sister; 4 = joint decision)
24. Viewing rules	Are there any rules in your home about the television viewing of your 2-6 year old children? (1= yes; 2= no)
25. Attention to child's viewing	Constructed scale adding the responses to the following questions: During the past week Have you or your spouse: a. Changed the channel or suggested another program or activity to keep your 2-6 year olds from watching a program you thought was unsuitable. b. Talked to your 2-6 year olds about a program they were watching or had watched. c. Were you aware of what programs your 2-6 year old children were watching on TV? (4= frequently; 3= occasionally; 2= rarely; 1= never)

* Measures were asked regarding self or spouse depending on which parent was interviewed.

**In all cases missing data were entered as the group mean or mode depending on the level of measurement.

When all 25 variables from Figure 2 are used, the Wilkes lambda criterion for the ability of the variable to discriminate is .836 with an associated F statistic (13 and 620 DF) of 9.44 and Chi square statistic of 112.98.[9] Both indicate a significant relationship at greater than the .01 level. Under the assumptions of a discriminant analysis, then, these 25 variables do discriminate between viewers and non-viewers of TVO.

The ability to discriminate, while statistically significant, is not perfect, however. As shown in Table 5, the percent of viewers correctly classified is 68.1%.

Table 5: Percentages of cases correctly classified with discriminant function

	Actual TVO Viewing Pattern	
Predicted TVO Viewing pattern	Views TVO (N=317)	Doesn't View TVO (N=317)
Views TVO	68.1%	30.3%
Doesn't View TVO	31.9	69.7

Because two groups are used only one function is defined. The relative contribution of the 25 variables used to discriminate between the two groups is indicated by the absolute value of the standarized discriminant function coefficients.[10] The interpretation of these coefficients is analogous to the interpretation of the beta weights in a multiple regression analysis. The standarized discriminant coefficients are displayed in Table 6. The relationships are all in the predicted direction. The Wilkes' Lambda indicates a stepurse increase in discriminating power.

Table 6: Standarized discriminant function coefficients

Variable	Coefficient	Wilkes'Lambda
Cable capability	.35	.92
TV influence on children	.34	.94
Commercial acceptability	30	.90
Nursery school attendance	.30	.88
Attention to child's viewing	.26	.87
Satisfaction with child's TV content	.20	.86
Father's education	.20	.97
Number of TV sets	.19	.85
Best TV programs are educational	.18	.85
Father's age	.16	.84
Number of newspapers and magazines	.13	.83
Mother's employment	.10	.84
TV stimulates curiosity	.10	.83

Other variables entered in the equation were not significant discriminators between the TVO viewers and non-viewers. These included: the mother's age and education; and father's occupation; the amount of television viewing by the parent or child; the number of children in the household; the extent of activities inside or outside the home, the communication pattern of the family; and who chooses television programs and whether or not parents have rules about television viewing.

Table 7 indicates that these variables which do discriminate between TVO viewers and nonviewers are a combination of the structural, family environmental, and television awareness and control variables as originally postulated. The direction of the variables which significantly discriminated between viewers and non-viewers of TVO is presented in Table 7.

From the directions presented in Table 7 it appears that children aged 2-6 who view TVO are more likely to have more highly educated and younger fathers and non-working mothers. They are also more likely to come from homes which are hooked into the cable, have two or more television sets and a greater number of newspapers and magazines. These TVO viewing children are more likely to have gone to nursery school. Their parents levy more control over their television viewing habits and are more aware of what television they are watching.

The greatest difference between children who view TVO and those who don't is their parents' attitudes toward television in general. The parents of TVO-viewing children believe that television has a strong or moderately positive influence on their children. They are more satisfied with television programming for children and when they choose the best program for children on television they cite educational reasons for their choice.

Table 7: Frequencies and Means of variables significantly discriminating between viewers and non-viewers of TVO

Predictors	Child's level of TVO viewing: High (N=143)	Low (N=164)	None (N=327)	(diff.)*
Family Social Location				
Father's education				
% greater than H.S.	38.5%	33.5%	22.4%	16.1%
Father's age				
% younger than 34 years	60.1	57.9	56.3	3.8
Mother's employment				
% employed	24.5	34.8	32.7	-8.2
Media Environment				
Cable capability				
% with cable	81.8	79.9	65.7	16.1
Number of TV sets				
% two or more	38.5	36.6	26.3	12.2
Number of magazines and newspapers read				
% reading over 6 a month	76.7	77.8	61.2	15.5
Family Interpersonal Environ.				
Nursery school attendance				
% attended	51.7	45.7	33.0	18.7
Attitudes toward Television's:				
Influence on children				
% say influence strong or moderately positive	74.9	64.0	53.5	21.4
Commercials aimed at pre-schoolers				
% agreeing commercials should not be in pre-	72.8	67.7	51.0	21.8
schoolers TV	72.8	67.7	51.0	21.8
Content for children				
% very satisfied	33.6	18.9	12.2	21.4
Best TV shows educational				
% citing education	60.8	57.9	48.6	12.2
Ability to stimulate curiosity				
% strongly agreeing	41.3	31.1	23.2	18.1
Television awareness				
parental attention to child's viewing				
% high level of education	43.2	31.0	30.2	13.0

*The difference calculated here is the difference between the frequency for the High TVO viewing group vs. the non-TVO viewing group.

These parents also think television can stimulate their child's curiosity and are also more likely than parents of non-TVO viewers to believe that commercials should be banned from children's programming.

Multiple Classification Analysis

The discriminant analysis indicated that a combination of structural, attitudinal and family environment variables discriminate between viewers and non-viewers of TVO. In order to test whether these same variables can be used to determine levels of TVO viewing among those who already watch TVO, a multiple classification analysis (MCA), a procedure similar to a dummy regression analysis, is performed.

The dependent variable in the analysis is four levels of TVO viewing which ranged from everyday to less than once a week. The predictor variables are a subset of those variables analyzed in the descriminant analysis (as described in Figure 2).

Of the five predictor groups -- 1) family social structure location, 2) family media environment, 3) family interpersonal environment, 4) attitudes toward television, and 5) television viewing awareness -- only the attitudinal variables significantly (p=.011) predicted level of TVO viewing.

For the MCA analysis of the attitudinal variables, the adjusted deviation from the grand mean (mean score on the dependent variable) and beta weights for each of the additudinal variables are presented in Table 8.

Table 8: Attitudinal variables significantly predicting levels of TVO viewing

Variable Attitudes toward television's:	Sample size	Adjusted Deviation	Beta**
Grand mean* = 1.84			
Influence on children			.26
Strong positive	2	2.05	
Moderate positive	8	0.28	
Neither pos./neg.	46	.13	
Moderate negative	85	-0.05	
Strong negative	50	-0.08	
Ability to stimulate curiosity			.21
Agree strongly	71	-0.62	
Agree somewhat	98	0.47	
Don't know	5	-0.10	
Disagree somewhat	12	0.08	
Disagree strongly	5	-0.14	
Children's content			.19
Very satisfied	48	-0.23	
Satisfied	117	0.11	
Somewhat dissatisfied	22	-0.18	
Very dissatisfied	4	0.52	
Commercials aimed at children			.16
Agree strongly	54	-0.08	
Agree somewhat	84	0.11	
Don't know	10	0.42	
Disagree somwhat	34	0.16	
Disagree strongly	9	0.14	
Best programs are educational			.06
1 program	159	0.02	
2 programs	25	-0.12	
3 programs	6	-0.02	

Explained	Sum of squares	DF	F	Significance
	26.296	17	2.043	.011

*The grand mean is the grand mean of the dependent varible, TVO viewing, where everyday=1 through less than once a week=4. The adjusted deviation from the grand mean describes the category effects of the predictor variable controlling for the other predictor variables (grand mean-adjusted category mean=adjusted deviation).

**The beta values can be viewed as standarized partial regression coefficients.

Table 8 indicates that while controlling for the other attitudinal variables shown, the parent's belief that television does not have a negative influence on their children explains the greatest amount of variance. These analysis also emphasize the previous finding that children of parents who are satisfied with children's television content are more likely to watch TVO than children of parents who are somewhat dissatisfied. Similar results are found for the parents' attitudes toward the acceptibility of commercials on children's programming.

While a cautionary note might be added on the problem of missing data,[11] in general the variables used in this MCA analysis do not predict levels of TVO viewing particularly well. The measures most predictive of TVO viewing levels are attitudinal, and are measures of the parent's attitudes toward television in general. These findings may indicate that TVO viewers are more satisfied because they watch TVO rather than they are TVO viewers because they are satisfied with current television in general. A longitudinal study would be necessary to sort out this process.

G. Discussion and Conclusions

The variables that discriminate between households in which the 2-6 year old children watch TVO and the households in which the children do not watch TVO are found within each of the five groupings suggested in Figure 1: 1) socio economic status of the parents, 2) the family media environment--particularly as related to access and reception, 3) the parents concern for the child, 4) the parent's attitudes toward television, and 5) the parent's awareness of the child's viewing behavior.

However, of the five groups, only the attitudinal variables significantly predict levels of TVO viewing among those who view TVO.

One clear message from the data is that one effective strategy for increasing TVO viewing is to increase clarity, availability, and information about TVO.

Cable, the number of television sets and the availability of newspapers and magazines in the household did discriminate in the predicted direction. High TVO viewers are more likely to have two to more television sets and be connected to cable.

Within the home, TVO viewers are also more likely to have a richer media environment. A subsequent analysis[12] of the types of magazines and newspapers read by parents of TVO viewers indicated that certain print materials were read more frequently by the parents of these children. This points the way toward print vehicles which could be used to keep these parents informed about TV Ontario's children's programs and to increase awareness in general.

This need for increased awareness is supported by the findings that approximately half (52 percent) of the parents whose children do not view TVO have not heard of the network. Even half (54 percent) of the parents whose children do view TVO programs admit to knowing only a small amount about the available TVO pre-school programs.

The thrust of the information about TVO to be viewed by parents should be aimed at the selective viewer who is concerned about the educational value of TVO programming.

The level of selectiveness in viewing TVO is inferred because the amount of parents' or child's viewing of television in general, is not a significant discriminating variable. The hours of television viewed is not significantly different between TVO viewing households and non-TVO viewing households. This suggests that some overt decisions regarding the content of the television the children will watch are being made in the TVO-viewing households. The emphasis on the educational quality of the program is further indicated by the overwhelming selection of Sesame Street as the favorite television show for pre-schools and that, when asked educational value is given as the primary reason for their choice of children's programs. Also high TVO viewers are likely to come disproportionately from those homes in which parents send their children to nursery school.

While there is evidence that the parents' awareness of the child's television viewing is related to TVO viewing, this parental concern does not appear to be related to the more general parent-child interaction. Notably, the parental interaction for both indoor and outdoor activities and parental control of viewing variables and television viewing rules, do not significantly discriminate between TVO and non-TVO households. However, parents of TVO-viewing children do tend to pay more attention to their child's TV viewing, both through frequent awareness of what their child is viewing and through communication with their child about programs the child views.

This generally indicates the value of messages to parents that emphasize the specific value of viewing TVO in terms of their concern for the child's learning.

Some of the significant predictors of both TVO/non TVO viewing and levels of TVO viewing are attitudinal. TVO viewers are more likely to think television has a positive influence on their child, believe commercials should be banned from children's television, pay attention to their child's viewing behavior, believe television can foster curiosity, are satisfied with television content for children and cite educational reasons for their selection of best children's programs. These parental concerns suggests that promotion regarding the educational value of TVO programs could be effective. Since one of the OECA's objectives in developing pre-school programs is to contribute to the child's intellectual, emotional, and social development, the product is relevant to the needs of parents who believe that television can affect their child's education. The absence of commercials on TVO is another feature which might capture the interest and allay the fears of the concerned about the negative impact of advertising in children.

Higher SES families are more likely to be receptive to appeals in greater TVO viewing. As predicted the social location of the household as measured by parental age, education and occupation, is related to TVO viewing. However, within the households in which the children do watch TVO, these variables do not predict the level of viewing particularly well.

Although the casual direction is unclear from these data, it is reasonable to assume that those variables concerning access, parental awareness of television viewing patterns and location in the social structure came prior in time to high levels of TVO viewing. This suggests that certain kinds of people are more likely to have access to and use public television and that this use may, in turn, contribute to the development of a more positive attitude toward television in general. It also suggests, on a more practical level, that campaigns designed to change the level of public television viewing by pre-schoolers could be aimed at changing these attitudes toward television in general.

A basic premise of this project is that parents of children who watch television are instrumental in making the TV-viewing decision for the 2-6 year old. In general we find this true and that increased TVO viewing can be expected if parents are made aware of TVO, have good access and availability, are concerned if the educational value of the programming, and generally have a positive attitude about television and TVO.

REFERENCES

Chaffee, S.H., and McLeod, J.M. "Adolescent television use in the family context." In Television and Social Behavior, Vol III: Television and Adolescent Aggressiveness. Washington, D.C.: U.S. Government Printing Office, 1972.

Chaffee, S.H., McLeod, J.M. and Atkin, C.K. "Parental influences on adolescent media use." "American Behavioral Scientist. 1971, 14: 323-340.

Dembo, R. and R. McCron. "Social factors in Media use." in Children and Television. R. Brown (ed.) London. Cassell and Collier, 1976, pp. 137-166.

Greenberg, B.S. "Viewing and listening parameters among British Youngsters." in Children and Television. R. Brown (ed.) London: Cassell and Collier, 1976, pp. 30-44.

Greenberg, B.S. B Dervin, with J. Bowes and J. Dominick Use of the Mass Media by the Poor New York: Prayer, 1970.

Lesser, G.S. Children and Television: Lessons from Sesame Street. New York: Random HOuse, 1974.

Lyle, J. The People Look at Public Television 1974. Washington: Corporation for Public Television.

Lyle, J. and Hoffman, H. "Children's Use of television and other media." In Television and Social Behavior. Vol. IV. Rubinstein, Comstock and Murray (eds.), U.S. Department of Health, Education and Welfare, 1972.

Lyle, J. Hoffman, H. "Explorations in patterns of television viewing by preschool-age children." In Children and Television. R. Brown (ed.), London: Cassell and Collier, 1976, pp.45-61.

McLeod, J.M. and Brown, J.D. "The family environment and adolescent television use." in Children and Television. R. Brown (ed.) London: Cassell and Collier, 1976, pp. 199-233.

McLeod, J.M. and O'Keefe, G.J. "The Socialization perspective and communication behavior," in Kline and Tichenor (eds.), Current Perspectives in Mass Communication Research, Sage Publications, Beverly Hills, 1972, pp. 121-68.

Miller, L. "OECA Research: Instructional Media in the Schools." A paper prepared for the State of Georgia's Educational Standards Review, June 1979.

Montgomery, D. "New product distribution: an analysis of supermarket buyer decisions," Journal of Marketing Research. 12 (3), 1975: 255-264.

Morrison, D. "Discriminant Analysis." in Handbook of Marketing Research. R. Farber (ed.) New York: McGraw Hill, 1975.

Nie, N., Hull, C., Jenkins, J., steinbrenner, K., and Bent, D. Statistical Package for the Social Sciences. New York: MCGraw Hill, 1975.

REFERENCES (cont.)

Rogers, E.M. "Communication and development: the passing of the dominant paradigm." Communication Research. 3: 213-240, 1976.

Schramm, W., Lyle, J., and Parker, E.B. Television in the Lives of Our Children. Stanford University Press, 1971.

Taylor, M., and Samuels, B. "Audience Development research." New York: Children's Television Workship, 1970.

Von Feilitzen, C. "The functions served by the media." in Children and Television. R. Brown (ed.) London: Cassell and Collier, 1976, pp. 137-166.

NOTES

1. Estimates based on 1976 population estimates.

2. Given the similarity between U.S. and Canadian television, the assumption is made that TV viewing research in the U.S. is applicable to Canadian TV viewing.

3. The study will focus on the discriminating power of the variables themselves and will not directly test the hypothesized linkages diagrammed in Figure 1.

4. Cable penetration in the Ontario province, while higher than in the U.S. is not universal. For the sample 73% report receiving TV cable. This estimate high, however, because of the oversample of those receiving TVo.

5. A residential number is chosen to correspond to a selected cluster. Numbers telephoned in each cluster are randomly generated with the working exchange of the chosed number.

6. Evening weekday television viewing was determined because of the confounding efforts of availability and viewing during normal working hours where parents are employed.

7. A discriminant analysis has several assumptions. First, a linear function produces the best discriminant boundary only if the variance-covariance matrices of the predictor variables are identical in the accept and reject populations. Morrison (1974) notes that in most empirical situations groups have reasonably similar covariation matrices. In this analysis, the equal and substantial size of each group increases the likelihood of similar covariation. In addition, the F-statistic, which is the criterion for inclusion of the variable, assumes that the predictor variables have a nominal distribution. To the extent that some of the variables are nominal level, such as program control, they cannot be normally distributed. Although the F statistic is robust, Montgomery (1975) notes that sizeable errors in classification may result when discrete and ordinal level predictor variables are used. However, Morrison (1974) also notes that dummy variables present no special problems. While the assumption of normalcy is not met, the "optimality" of the linear function is not very sensitive to the normalacy of the data. Problems may arise, however, in nominal level data with two or more categories. Therefore, the measure of father's occupation used here may present some problems although it was coded on an underlying dimension of class status.

An additional potential problem is the process of choosing the variables to be entered in the spetwise procedure. Independent variables are chosen for entry on the basis of their discriminating power. As each additional variable is selected it is controlled for by the others already entered. This procedure produces the best selection of each variable given the variables already selected and results in an optimal set of variables being selected. However, because the initial variables entered are not controlled for by other variables in the analysis, this procedure may not be the maximal solution and those variables entered initially may not be the best discriminating variables when controlled for by the other variables in the analysis.

NOTES (cont.)

Consequently, as indicated by the Wilkes' Lambda on this set of 25 variables, the order of entry is not necessarily the same as the order of importance and discriminators. (For a more complete discussion of the analysis technique, see Nie, et al., 1975).

8. The discriminant program used in the analysis is the SPSS stepwise discriminant procedure.

9. The criterion or entry of the variable is the overall F ratio for the test of differences among group centroids. The variable which maximizes the F ratio also minimizes Wilkes' Lambda, a measure of group discrimination. The larger the Lambda, the less discriminating power present.

10. The coefficients correspond to the values of dij's given in the formula: $D_i = D_{i1} Z_{i1} + d_{i2} Z_2 + \ldots d_{ij} Z_j$

Where Di is the score on the discriminant function i, the d's are weighting coefficients and the z's are the standardized values of the j discriminating variables used in the analysis. They are used to compute the discriminating score for a case in which the original discriminatory variables are unstandardized scores. Thus any single score represents the number of standard deviations that ease is away from the mean of all cases in the given discriminant function.

11. The attitudinal variables included in the MCA analysis has a large amount of missing data. Of the 339 cases included in the MCA analysis. The reason is the large number of respondents saying "don't know" is quite high for each of the attitudinal variables. The deletion by MCA of any respondent indicating "don't know" on any variable confounds this problem of missing data.

12. A number of specific analysis were carried out in addition to the discriminant analysis.